



System Requirements

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Recommended Platform

See [Virtualization for Cisco Expressway](#) for the current list of supported UCS Tested Reference Configurations and specs-based supported platforms.

Virtual Machine Requirements



Warning

The Expressway ova virtual appliances are designed to meet the minimum deployment requirements. Do not change the ova configuration after installation, as Cisco may no longer be able to support your deployment.



Note

We strongly recommend you not to use any power management features.

Make sure that the following requirements are in place:

- VT is enabled in the BIOS before you install VMware ESXi.
- The VM host “**Virtual Machine Startup/Shutdown**” setting is configured to “**Allow Virtual machines to start and stop automatically with the system**”, and the VM Expressway has been moved to the Automatic startup section.

Do not change the MAC address of the VM

The serial number of a virtual Expressway is based on the virtual machine's MAC address. The serial number is used to validate Expressway licenses and to identify Expressways that are registered to the Cisco Webex

cloud. Do not change the MAC address of the Expressway virtual machine when using VMware tools, or you risk losing service.

Use the VM .ova file for initial VM installation only

The VM Expressway is licensed using information that is generated at the time of the .ova file installation. If the .ova was installed a second time, new licensing information would be created, and to use the new VM, new release and licence keys would need to be purchased. To upgrade a VM Expressway, follow the procedure under [Upgrading or Downgrading an Expressway VM](#), using the .tar.gz version of the Expressway software.

Take a backup after completion

After the VM installation is complete, we recommend that you take a backup of the configuration (described in [Creating a Backup of Your System and Deleting Existing Snapshots](#)).



Caution Do not take VMware snapshots of Cisco Expressway systems. The process interferes with database timing and negatively impacts performance.

Specifications-Based System – Minimum Specification

If you use a UCS Tested Reference Configuration or specifications-based system, the minimum requirements are:

Table 1: Specifications-Based System – Minimum Specification

Deployment size	vCPU	Reserved CPU resource	Reserved RAM	Disk space	NIC
Small	2 core	3600 MHz (2 x 1.8 GHz) (i.e., 2 x a single speed of 1.8 GHz per single core)	4 GB	132 GB	1 Gb
Medium	2 core	4800 MHz (2 x 2.4 GHz) (i.e., 2 x a single speed of 2.4 GHz per single core)	6 GB	132 GB	1 Gb
Large (extra performance and scalability capabilities)	8 core	25600 MHz (8 x 3.2 GHz) (i.e., 8 x a single speed of 3.2 GHz per single core)	8 GB	132 GB	1 Gb

Two Large Expressway VMs can co-reside on a UCS server with two eightcore 3.2 GHz processors all dedicated to Expressway, when hyperthreading is enabled. To allow for hypervisor overhead, the CPU reservation is set to 16000 MHz, but the full allocation of 8x 3.2 GHz CPU cores must be made available to each Large Expressway VM. The reservation does not limit maximum Expressway CPU speed, as the Expressway can use the headroom provided by the higher specification host.

For all deployment sizes, you need the following:

- VM host operational and running a supported ESXi version (see [ESXi Requirements](#)).
From X12.5, **the Expressway no longer supports ESXi 5.5 or earlier versions.**
- VMware vCenter or vSphere client operational. Depending on the client software version, you may need to use the Flash-based version (not HTML5) due to customized template requirements.
The desktop vSphere Client is not available from vSphere 6.5 and later.
- Reserved RAM, CPU, and NIC as per table above.
- Subject to bandwidth constraints, Large VMs can run with a 1 Gbps NIC.

How to Modify Expressway VM Capacity

Increasing the capacity of a VM-based Expressway from a smaller deployment size to a larger deployment (Small -> Medium -> Large) or decreasing the capacity from a larger deployment to a smaller one (Large -> Medium -> Small) **cannot be done by simply increasing or decreasing the underlying vCPUs and memory hardware resources of the VM.** The correct method to upgrade or downgrade is to deploy a new VM of the required deployment size, and then restore the existing configuration (smaller VM for upgrade and larger VM for downgrade) onto the new one. The process to do this is outlined later in this guide in [Upgrading or Downgrading an Expressway VM](#).

ESXi Requirements



Note The minimum versions specified here are subject to VMware support. The versions are correct when this documentation is published, but if VMware subsequently withdraws support for any stated version, you may need to use newer ESXi versions.

The minimum virtual hardware required to host virtual Expressway deployments is VMware ESXi 6.5. Cisco does not support Expressway VMs hosted on ESXi 6.0 or earlier (these versions are no longer supported by VMware).

New installations of Expressway OVAs will not run on any host version before ESXi 6.5.

The following are the ESXi supported versions for X12.7. For new Expressway VM deployments, the Expressway OVAs must be installed on any of the following versions. If you have existing VM deployments running on an ESXi 6.0 or earlier versions, **upgrade the host to any of the following versions before you install the new Expressway software.**

- ESXi 6.5 Update 2
- ESXi 6.7 Update 1 from X12.5.2, and Update 2 - for Large VMs only - from X12.5.4
- ESXi 6.7 Update 3 from X12.6.1 for Large and Medium VMs
- ESXi 6.7 Update 3 from X12.6.3 for Small VMs

- ESXi 7.0. From X14.2 release, ESXi 7.0 Update 3, ESXi 7.0 Update 3c, and ESXi 7.0 Update 3d are also supported.
- From the X14.2 and later releases, ESXi 6.5 Update 2a, ESXi 7.0 Update 3, ESXi 7.0 Update 3c, and ESXi 7.0 Update 3d are supported.
- From the X14.2.6 and later releases, ESXi 6.5 Update 2a, ESXi 7.0 Update 3c, ESXi 7.0 Update 3d, and ESXi 8.0 are supported.



Note VMware withdrew the following supported versions: ESXi 7.0 Update 3, 3a, and 3b due to critical issues identified with those builds. (**Reference:** [Link](#)).

For upgrade instructions, see the VMware documentation.



Note If you migrate an existing VM to a different host, you must shut down the VM before you move it.

More information

- Instructions about installing new Cisco Expressway VMs are in the Cisco Expressway on Virtual Machine Installation Guide on the [Expressway Install and Upgrade Guides](#) page
- Instructions about how to upgrade a single (non-clustered) Expressway VM are also in the Cisco Expressway on Virtual Machine Installation Guide
- Instructions about upgrading a clustered Expressway VM system are in the Cisco Expressway Cluster Creation and Maintenance Deployment Guide on the [Cisco Expressway Series configuration guides](#) page
- For information about VMware supported versions, see [Product Lifecycle Matrix](#).

If using the vSphere client, configure the network properties through the console.

Limitation

- This issue applies to running virtualized systems with certain ESXi versions using VMware vCenter 7.0.x. It was found during testing using VMware vCenter 7.0.1 with ESXi 6.7.0 to deploy. The Ready to Complete final page of the Deploy OVF Template wizard displays template values instead of the actual values entered on the earlier wizard pages. The issue is cosmetic, and when you click "FINISH," the OVA will deploy as expected using the entered values. Bug ID CSCvw64883 refers.
 - Video calling capacity may be restricted if the ESXi Side-Channel-Aware Scheduler is enabled, and CPU load exceeds 70%.
 - With physical appliances, the **Advanced Networking** feature allows the speed and duplex mode to be set for each configured Ethernet port. You cannot set port speeds for virtual machine-based systems.
- Also, virtual machine-based systems always show the connection speed between and Ethernet networks as 10000 Mb/s, regardless of the actual physical NIC speed. This is due to a limitation in virtual machines, which cannot retrieve the actual speed from the physical NIC(s).

Co-residency Support

The Expressway can co-reside with applications (any other VMs occupying same host) subject to the following conditions:

- No oversubscription of CPU. You need one-to-one allocation of vCPU to physical cores.
- No oversubscription of RAM. You need one-to-one allocation of vRAM to physical memory
- No oversubscription of NIC. The Expressway handles large volumes of data, much of which is for real-time communications, and it needs dedicated access to all the bandwidth specified for its interfaces.

For example, you should not assume that four co-resident small Expressway VMs can handle the expected load if there is only a 1 Gbps physical interface on the host. In this case none of the VMs meet the required minimum specification.

- Sharing disk storage subsystem is supported, subject to correct performance (latency, bandwidth) characteristics.

